



Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

**BUREAU OF AIR MANAGEMENT
NEW SOURCE REVIEW PERMIT
TO CONSTRUCT AND OPERATE A STATIONARY SOURCE**

Issued pursuant to Title 22a of the Connecticut General Statutes (CGS) and Section 22a-174-3a of the Regulations of Connecticut State Agencies (RCSA).

Owner/Operator	Pratt & Whitney, Division of United Technologies Corporation
Address	400 Main Street, Mail Stop 102-21, East Hartford, CT 06118
Equipment Location	400 Main Street, East Hartford, CT (Building K)
Equipment Description	0.46 mmBtu/hr Noble Gas Furnace (Incinerator)
Town-Permit Numbers	053-0142
Premises Number	0009
Stack Number	141
Modification Issue Date	May 24, 2016
Prior Permit Issue Date	January 16, 2015
Expiration Date	None

/s/ Anne Gobin for
Robert J. Klee
Commissioner

May 24, 2016
Date

This permit specifies necessary terms and conditions for the operation of this equipment to comply with state and federal air quality standards. The Permittee shall at all times comply with the terms and conditions stated herein.

PART I. DESIGN SPECIFICATIONS

A. General Description

Pratt & Whitney (P&W) is an aerospace manufacturer with global service operations. It is a division of United Technologies Corporation (UTC). The furnace covered under this permit is used to remove moisture and wax or moisture and epoxy resin from aircraft turbine blade and vane parts that have undergone a laser drilling process. The wax or epoxy resin is removed from the blades after the drilling is complete by placing the part in the furnace and heating the wax or epoxy resin to a minimum of 1,000 °F. At that temperature the wax or epoxy resin combusts. A secondary combustion chamber acts as an afterburner heating the primary chamber exhaust to a minimum of 1400 °F. The furnace is defined as an incinerator in accordance with RCSA 22a-174-1(53).

B. Equipment Design Specifications

1. Incinerator
 - a. Primary Combustion Chamber
 - i. Burner Manufacturer/Model No: North American Tempest Series Model 4442-2
 - ii. Fuel Type(s): Natural Gas
 - iii. Number of Burners: 1
 - iv. Maximum Design Fuel Firing Rate (ft³/hr): 230
 - v. Maximum Design Heat Capacity of Chamber (Btu/hr): 230,000
 - vi. Combustion Gas Residence/Retention Time (sec): 1.59
 - vii. Effective Grate Area (sq.ft): 0.75
 - b. Secondary Combustion Chamber
 - i. Burner Manufacturer/Model No: North American Tempest Series Model 4442-2
 - ii. Fuel Type(s): Natural Gas
 - iii. Number of Burners: 1
 - iv. Maximum Design Fuel Firing Rate (ft³/hr): 230
 - v. Maximum Design Heat Capacity of Chamber (Btu/hr): 230,000
 - vi. Combustion Gas Residence/Retention Time (sec): 1.93

C. Stack Parameters

1. Minimum Stack Height (ft): 42.3
2. Stack Dimensions : 14.25 inches by 19.63 inches
3. Minimum Distance from Stack to Property Line (ft): 30

PART II. OPERATIONAL CONDITIONS AND MAINTENANCE REQUIREMENTS

A. Equipment

1. Incinerator

a. Materials Charged:

The Permittee shall limit the total hourly charge rate of wax and resin such that it satisfies the following equation: $2 \times \text{lb.}(R) + \text{lb.}(W) \leq 3.75 \text{ lb.}$

Where lb.(R) is the pounds of resin charged during the hour and lb.(W) is the pounds of wax charged during the hour.

- b. The Permittee shall use only organic based wax that will achieve compliance with the emission limits in this permit.
- c. The Permittee shall use only "Ecopoxy Clear Resin" and "Ecopoxy EPH2374" manufactured by Ecopoxy Corporation or substances of equivalent chemical composition that will achieve compliance with the emission limits in this permit.
- d. Maximum Annual Charge Rate over any consecutive 12 month period: 16.44 tons of Wax and Epoxy Resin combined.
- e. Minimum Operating Temperature of Primary Chamber: 1000 °F (Normal 1350 °F)
- f. Minimum Operating Temperature (Excluding Startups & Shutdowns) of Secondary Chamber: 1400 °F
- g. The Permittee shall not process material through the primary chamber unless the secondary chamber is at or above 1400 °F
- h. Maximum Fuel Consumption over any consecutive 12 month period: 4.03 MMcf
- i. The Permittee shall operate and maintain this equipment in accordance with the manufacturer's specifications and written recommendations.
- j. The Permittee shall only allow personnel who have been trained in the proper operation of the incinerator to operate the incinerator.

PART III. ALLOWABLE EMISSION LIMITS

The Permittee shall not cause or allow this equipment to exceed the emission limits stated herein at any time.

A. Criteria Pollutants

Pollutant	lb/hr	gr/dscf @ 12% CO ₂	tpy
PM	0.11	0.08	0.48
PM ₁₀	0.11		0.48
PM _{2.5}	0.11		0.48

SO _x	2.8 ^{E-4}		1.21 ^{E-3}
NO _x	0.05		0.20
VOC	1.89 ^{E-2}		8.26 ^{E-2}
CO	0.04		0.17

B. Hazardous Air Pollutants

This equipment shall not cause an exceedance of the Maximum Allowable Stack Concentration (MASC) for any hazardous air pollutant (HAP) emitted and listed in RCSA Section 22a-174-29. [STATE ONLY REQUIREMENT]

C. Opacity

This equipment shall not exceed 10% opacity during any six minute block average as measured by 40 CFR 60, Appendix A, Reference Method 9.

D. Demonstration of compliance with the above emission limits shall be met by calculating the emission rates using emission factors from the following sources:

- AP-42, 5th edition, Tables 1.41-1 through 1.43 (March 1998)
- PM, PM10, PM2.5 emission factors derived from Stack Test Data from a similar furnace installed at the 400 Main Street, East Hartford P&W facility prior to June 1, 2009.

The commissioner may require other means (e.g. stack testing) to demonstrate compliance with the above emission limits, as allowed by state or federal statute, law or regulation.

PART IV. MONITORING, REPORTING AND RECORD KEEPING REQUIREMENTS

A. Monitoring

1. The Permittee shall continuously monitor fuel consumption using a non-resettable totalizing fuel meter.
2. When the furnace is in operation the Permittee shall continuously monitor the temperature of the secondary combustion chamber.
3. The Permittee shall monitor the type and amount of wax and epoxy resin used.

B. Record Keeping

1. The Permittee shall keep records of the hourly, daily, monthly and consecutive 12 month quantity of the type and amount of wax and epoxy resin used. The consecutive 12 month quantity of type and amount of wax and epoxy resin used shall be determined by adding the current month's quantity to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of each month.
2. The Permittee shall keep records of the daily, monthly and consecutive 12 month fuel consumption. The consecutive 12 month fuel consumption shall be determined by adding the current month's fuel consumption to that of the previous 11 months. The Permittee shall make these calculations within 30 days of the end of each month.

3. The Permittee shall record the amount of wax and resin incinerated during each hour of operation and calculate and record if the combined hourly charge rate for the wax and resin satisfies the equation in Part II.A.1.a. of this permit.
4. The Permittee shall record the type of wax and resin used in order to verify that the operating restrictions in Part II.A.1.b. and Part II.A.1.c. are adhered to.
5. When the furnace is in operation the Permittee shall continuously record the temperature of the secondary combustion chamber.
6. The Permittee shall record the periods of startup and shutdown of the furnace.
5. The Permittee shall calculate and record the monthly and consecutive 12 month PM, PM₁₀, PM_{2.5}, SO_x, NO_x, VOC and CO emissions in units of tons. The consecutive 12 month emissions shall be determined by adding (for each pollutant) the current month's emissions to that of the previous 11 months. Such records shall include a sample calculation for each pollutant. The Permittee shall make these calculations within 30 days of the end of the previous month.
6. The Permittee shall keep records of the name of the manufacturer of each wax and epoxy used and the chemical composition of each wax and each epoxy used. The Material Safety Data Sheet (MSDS) for a wax or epoxy resin may suffice if the MSDS adequately provides the chemical composition composition of the wax or epoxy resin. These records shall be kept for the duration of the permit.
7. The Permittee shall make and keep records of the manufacturer's specifications and written recommendations for the incinerator. These records shall be kept for the duration of this permit.
8. The Permittee shall keep records of the chemical formulation of "Ecopoxy Clear Resin" and "Ecopoxy EPH2374" manufactured by Ecopoxy Corporation for the duration of the permit.
9. The Permittee shall keep all records required by this permit for a period of no less than five years and shall submit such records to the commissioner upon request.

PART V. SPECIAL REQUIREMENTS

- A. The Permittee shall not cause or permit the emission of any substance or combination of substances which creates or contributes to an odor beyond the property boundary of the premises that constitutes a nuisance as set forth in RCSA Section 22a-174-23. [STATE ONLY REQUIREMENT]
- B. The Permittee shall operate this facility at all times in a manner so as not to violate or contribute significantly to the violation of any applicable state noise control regulations, as set forth in RCSA Sections 22a-69-1 through 22a-69-7.4. [STATE ONLY REQUIREMENT]

PART VI. ADDITIONAL TERMS AND CONDITIONS

- A. This permit does not relieve the Permittee of the responsibility to conduct, maintain and operate the regulated activity in compliance with all applicable requirements of any federal, municipal or other state agency. Nothing in this permit shall relieve the Permittee of other obligations under applicable federal, state and local law.

- B.** Any representative of the DEEP may enter the Permittee's site in accordance with constitutional limitations at all reasonable times without prior notice, for the purposes of inspecting, monitoring and enforcing the terms and conditions of this permit and applicable state law.
- C.** This permit may be revoked, suspended, modified or transferred in accordance with applicable law.
- D.** This permit is subject to and in no way derogates from any present or future property rights or other rights or powers of the State of Connecticut and conveys no property rights in real estate or material, nor any exclusive privileges, and is further subject to any and all public and private rights and to any federal, state or local laws or regulations pertinent to the facility or regulated activity affected thereby. This permit shall neither create nor affect any rights of persons or municipalities who are not parties to this permit.
- E.** Any document, including any notice, which is required to be submitted to the commissioner under this permit shall be signed by a duly authorized representative of the Permittee and by the person who is responsible for actually preparing such document, each of whom shall certify in writing as follows: "I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information may be punishable as a criminal offense under section 22a-175 of the Connecticut General Statutes, under section 53a-157b of the Connecticut General Statutes, and in accordance with any applicable statute."
- F.** Nothing in this permit shall affect the commissioner's authority to institute any proceeding or take any other action to prevent or abate violations of law, prevent or abate pollution, recover costs and natural resource damages, and to impose penalties for violations of law, including but not limited to violations of this or any other permit issued to the Permittee by the commissioner.
- G.** Within 15 days of the date the Permittee becomes aware of a change in any information submitted to the commissioner under this permit, or that any such information was inaccurate or misleading or that any relevant information was omitted, the Permittee shall submit the correct or omitted information to the commissioner.
- H.** The date of submission to the commissioner of any document required by this permit shall be the date such document is received by the commissioner. The date of any notice by the commissioner under this permit, including but not limited to notice of approval or disapproval of any document or other action, shall be the date such notice is personally delivered or the date three days after it is mailed by the commissioner, whichever is earlier. Except as otherwise specified in this permit, the word "day" means calendar day. Any document or action which is required by this permit to be submitted or performed by a date which falls on a Saturday, Sunday or legal holiday shall be submitted or performed by the next business day thereafter.
- I.** Any document required to be submitted to the commissioner under this permit shall, unless otherwise specified in writing by the commissioner, be directed to: Office of Director; Engineering & Enforcement Division; Bureau of Air Management; Department of Energy and Environmental Protection; 79 Elm Street, 5th Floor; Hartford, Connecticut 06106-5127.